

THE NAUTILUS

Vol. XLIX

January, 1936

No. 3

COMPARATIVE STUDIES OF LOESS AND RECENT MOLLUSKS

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Attempts have been revived in recent years to show that the climate during loess deposition was much colder than at present in the same region. As this contention is based largely upon the land molluscan fauna of this deposit it is important that comparative studies of the fossil and modern forms be made, though it must be remembered that in the final estimate no single species is a criterion, but that the final conclusion must be based on the fauna as a whole.

The notes on the species of this fauna, of which this is the first installment, are based on the writer's very large collections of both fossil and modern forms, the former almost wholly and the latter largely collected by himself during more than half a century, chiefly within our loess region from Indiana to Nebraska and from Minnesota to Louisiana. Throughout, the "fossils" are those from loess.

POLYGYRA PROFUNDA (Say)

This species now ranges from western New York to Minnesota and Nebraska, and southward to Virginia and Kansas.

The fossils have been found from the southwestern part of Indiana to the eastern counties of Nebraska south of Douglas County, and from the southern third of Iowa to Louisiana. They are locally common in Mississippi, Arkansas, Tennessee, Kentucky and southern Illinois, but are less frequent northwestward.

The species now lives in deep, chiefly upland woods, especially on bluffs, but in northern and western Iowa and eastern Nebraska it extends into smaller prairie groves which suffer from summer drouth, where it is usually much smaller than the type (usually given at about 28 mm. in diameter).

Both fossil and recent forms are very variable in size, as the following table shows.

<i>Locality</i>	<i>No. of spec.</i>	<i>Gr. diam.</i>	<i>Height</i>	<i>No. of whorls</i>
<i>Recent</i>				
St. Louis, Mo.	1	32.5 mm.	17.0 mm.	5.5
Cincinnati, O.	16	29.5-25.5	17.0-15.0	5.5-5
N. Illinois (2 loc.)	19	30.5-25.5	16.5-14.0	5.3-5
N. E. Iowa (3 loc.)	26	29.5-21.5	16.0-13.0	5.2-5
Iowa City, Ia.	108	28.0-22.5	17.0-13.0	5.5-5
Mason City, Ia.	252	25.0-20.0	16.0-11.5	5.1-4.8
Floyd Co., Ia.	20	25.5-21.0	14.5-12.5	5.1-5
E. Nebraska (3 loc.) ...	5	25.0-23.0	15.0-14.0	5.2-5
<i>Fossil</i>				
Tunica, La.	2	27.0-25.0	14.5-13.0	5.2
Mississippi (3 loc.)	313	30.0-23.5	16.5-12.0	5.4-5
Helena, Ark.	227	30.0-22.0	16.0-12.5	5.3-5
W. Tennessee, (3 loc.) ...	43	30.0-23.5	17.0-12.5	5.5-4.8
Hickman, Ky.	130	33.5-24.0	17.5-13.5	5.5-5.2
New Harmony, Ind. ...	7	27.0-23.0	16.0-13.5	5.5-5.2
Alton, Ill.	63	28.0-19.5	14.5-12.0	5.4-5.1
Ill. (4 other loc.)	44	30.0-21.5	16.5-12.0	5.5-5.1
Iowa City, Ia.	49	25.0-21.0	14.0-12.5	5.3-5.1
W. Iowa	3	26.0-24.0	14.5-12.5	5.
E. Nebraska	2	25.0-23.0	15.1-15.0	5. -5.2

The larger sets, both recent and fossil, form perfect series to the half of a millimeter between the extremes given in the table.

F. C. Baker described a fossil *var. pleistocenica* from Alton, Illinois, as follows: "Shell uniformly smaller than typical *profunda*, more solid, with slightly higher spire and proportionately smaller aperture and umbilicus; the color bands developed in but two specimens of the 16 examined . . ."

The dimensions of the three types, as given, range as follows:

Gr. diam. 26-22 mm. Height 14.7-14.0 mm.

The table shows that this range is about the same as that of the fossils from Iowa and Nebraska, and that *the recent forms from the prairie groves of N. Iowa and E. Nebraska are even slightly smaller.*

It should also be noted that the present writer's series of 63 shells from one exposure at the type locality, Alton, Ill., shows a much wider range in both diameter and height than given in Baker's description. It very much resembles the recent set from a single colony at Iowa City.

As for the remaining characters, it may be said that the chalky shells of the larger loess species always give the impression of greater solidity, and that the height of the spire and size of the aperture vary equally in both fossil and recent forms. The color bands may also be absent in recent forms and constitute no distinctive character. Thus a set of 114 recent shells from Iowa City shows 81 with bands, 6 with very faint bands and 27 unicolorated.

The table also shows that there is so much overlapping in the several series that no lines can be drawn between different phases. It is, moreover, absurd to apply the name *pleistocenica* to a form which is still living in Iowa and Nebraska, or to infer from it that the climate was much colder during loess deposition.

NOTES ON PHILIPPINE FRESHWATER MOLLUSKS

BY CALVIN GOODRICH

Mr. Pedro de Mesa, of Lubang, made a collection of freshwater shells in three rivers of the Philippine Islands in January of last year. Specimens were taken in such quantities that a satisfactory study of shell variation could be made and a conception be obtained of species distribution. The first lot received was from Agkawayan River of Lubang Island. Mr. de Mesa took the trouble to collect at three different stations of the stream. Unfortunately, the material became mixed during shipment and has had to be considered as a whole. That from the Lilimbon River of Luzon, on the other hand, came through undisturbed, making it clear that while the stream is a short one and everywhere close to the sea, the molluscan fauna at the mouth, midway and near the source is, in each place, fairly distinctive. The Antipode River, a tributary of Pasig River of Luzon, was touched at one spot. The findings on the melanians are here set forth.

Melania setosa Swainson. This species was plentiful near the mouth of Lilimbon River. Three specimens were taken at the